DreamBooth3D: Subject-Driven Text-to-3D Generation

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Abstract

We present DreamBooth3D, an approach to personalize text-to-3D generative models from as few as 3-6 casually captured images of a subject. Our approach combines recent advances in personalizing text-to-image models (DreamBooth) with text-to-3D generation (DreamFusion). We find that naïvely combining these methods fails to yield satisfactory subject-specific 3D assets due to personalized text-to-image models overfitting to the input viewpoints of the subject. We overcome this through a 3-stage optimization strategy where we jointly leverage the 3D consistency of neural radiance fields together with the personalization capability of text-to-image models. Our method can produce high-quality, subject-specific 3D assets with text-driven modifications such as novel poses, colors and attributes that are not seen in any of the input images of the subject. More results are available at our project page: https://dreambooth3d.github.io